REMARKS

Claims 1-20 are pending in this application.

Claims Rejections Under 35 U.S.C. § 101

The Examiner rejected claims 1-20 under 35 U.S.C. § 101 as directed to non-statutory subject matter. Applicants respectfully traverse the Examiner's rejections.

Independent claim 1 recites, "[a] method of ***decoding digital audio data***, comprising the steps of: ***obtaining*** an input sequence of data elements representing encoded audio samples; ***preprocessing*** the input sequence ... to produce an array of sum data and an array of difference data ... ***producing*** a first sequence of output values using the array of sum data; ***producing*** a second sequence of output values using the array of difference data; and ***forming*** decoded audio signals from the first and second sequences of output values" (emphasis added). Independent claim 8 recites, "[a] method of ***decoding a sequence of ... input digital audio data samples ... to produce a set of ... output audio data samples*** ... comprising the steps of: ... ***producing an array of sum data*** ... ***producing an array of difference data*** ...***producing a first output audio data sample*** ... ***producing a second output audio data sample***" (emphasis added).

The Examiner appears to be incorrectly reading claims 1 and 8 as if they merely recited a decoded audio signal by itself or a single step of manipulating the encoded audio data. The language of claims 1 and 8 is not so broad. Claim 1 instead recites the preprocessing, producing and forming steps indicated above. Claim 8 recites the producing steps indicated above. The Examiner also incorrectly reasons that the result of a process involving calculations and manipulation of digital audio data cannot be a useful, tangible, concrete result. Claims 1 and 8 are directed to statutory methods because they are directed to a practical application (producing decoded audio data) that employs underlying data structures. As stated in the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility, at page 33, "In evaluating whether a claim meets the requirements of section 101, the Supreme Court requires that the claim be considered as a whole to determine whether it is for a particular application of an abstract idea, rather than for the abstract idea itself." Claims 1 and 8 are directed to a method that results in a decoded audio signal. As is well known and confirmed in the Background section of the present application, encoding and decoding audio signals improves the efficiency

of transmitting and storage systems. Substantially all modern digital audio storage and communication systems rely on decoding techniques, such as that recited in claim 1, to improve storage and transmission efficiency. Claims 1 and 8 are directed to statutory subject matter because they use underlying mathematical algorithms to produce decoded audio signals, a result that provides a specific practical application. See also the previous Examination Guidelines for Computer-Related Inventions, dated June 26, 1997, at page 18, analyzing a hypothetical claim directed to a process for removing noise from a digital signal that includes "producing a correction signal and subtracting the correction signal from the digital signal to remove the noise," and indicating the claim is statutory. Claims 2-7, 18 and 19 depend from claim 1 and claims 9, 10 and 20 depend from claim 8. Accordingly, claims 1-10 and 18-20 are directed to statutory subject matter.

Independent claim 11 recites, "[a] synthesis sub-band filter for use in decoding digital audio data, comprising: means for receiving … pre-processing means for producing an array of sum data and an array of difference data using selected data elements from the input sequence; and transform output means for producing a first sequence of decoded output values." Independent claim 14 recites, "[an] MPEG decoder comprising: means for receiving an input sequence of data elements … means for producing an array of sum data and an array of difference data … and means for producing a first sequence of decoded output values."

The Examiner incorrectly analyzes claims 11 and 14 as "nothing more than a program or steps performed on a general purpose processor. The code/program implemented on the processor does not fall within one of the four enumerated statutory categories." On the contrary, it is certainly irrelevant to a determination of statutory subject matter whether a computer program could be used to implement a claimed process because countless US patents are granted for processes that can be implemented by computers controlled by computer programs – it is the entire basis for computer-readable medium claims. The Examiner appears to be reading claim 11 and 14 as if they merely recited using a computer to perform an algorithm, but claims 11 and 14 are not so broad. As the Examiner notes, the claims are in means-plus-function format and specific structure and software combinations are identified in the

specification for the recited functions. Claim 12 depends from claim 11 and claims 15-17 depend from claim 14. According, claims 11-17 are directed to allowable subject matter.

Claims Rejections Under 35 U.S.C. § 103

The Examiner rejected claims 1-6, 11, 18 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Uramoto (European Patent Application No. 0 506 111 A2). Applicants respectfully traverse the Examiner's rejections.

The Examiner argues that Uramoto teaches decoding of digital video data, and that it would have been obvious to apply the teachings of Uramoto to digital audio data. This argument assumes that Uramoto teaches, suggests or motivates each of the recited elements for the decoding of digital video data. This assumption, however, is incorrect, as explained below.

Turning to the language of the claims, claim 1, recites, in part "[a] method of **decoding** digital audio data, comprising the steps of: obtaining **an input sequence of data elements representing encoded audio samples**; preprocessing **the input sequence of data elements** to produce an array of sum data and an array of difference data **using selected data elements from the input sequence** ..." (emphasis added). Similarly, claim 11 recites, in part, "[a] synthesis sub-band filter for use in **decoding** digital audio data, comprising: means for receiving or retrieving **an input sequence of data elements comprising encoded digital audio data**; pre-processing means for producing an array of sum data and an array of difference data **using selected data elements from the input sequence** ..." (emphasis added).

The portions of Uramoto to which the Examiner points do not teach or suggest a method of decoding digital audio data, as recited. To the extent decoding is addressed, a different method is taught. The portion of Uramoto to which the Examiner points, including the discussion of digital video encoding.on page 2, teaches using the discrete cosine transform (DCT) for **encoding**. See Figure 5 of Uramoto and the accompanying description thereof on page 8, lines 15-37. Uramoto teaches using the inverse discrete cosine transform (IDCT) for decoding, which teaches post-processing "a sum and a difference between intermediate data." In other words, intermediate multiplication of the input occurs and it is the intermediate data that is subjected to additions and subtractions. See, *e.g.*, the description of Figure 11 of Uramoto and

the accompanying description thereof on page 10, line 48 through page 12, line 22. Contrary to the Examiner's position, the intermediate data is not "an input sequence of data elements representing encoded audio samples," as recited. Accordingly, Uramoto teaches away from the claimed invention. Thus, Uramoto does not teach or suggest decoding digital audio data by "preprocessing the input sequence of data elements to produce an array of sum data and an array of difference data ...; producing a first sequence of output values using the array of sum data; producing a second sequence of output values using the array of difference data; and forming decoded audio signals from the first and second sequences of output values" as recited.

With regard to the decoding operation of Uramoto, the Examiner previously stated that Uramoto discloses a processing unit operable in a decoding application in which the processing unit is "in its same form as the processing unit disclosed in Fig. 5." More specifically, and in reference to Fig. 11, Uramoto states "[p]ostprocessing section 7 has the same configuration as that of Fig. 5 or 6" (page 12, line 24). Although Uramoto discloses a postprocessing section 7 (Fig. 11) that has the same configuration as preprocessing section 1 (Figs. 4 or 5), postprocessing section 7 does not "produce an array of sum data and an array of difference data using selected data elements from the input sequence," where the input sequence is an "input sequence of data elements representing encoded audio samples," as claimed.

In reference to the postprocessing section 7 of the IDCT processor (Fig. 11) having the same configuration as the preprocessing section 1 of the DCT processor (Fig. 4), Uramoto states "input circuit 21 sequentially or alternately receives intermediate terms Mi (i = 0 to 3), Ni (i = 0 to 3) to apply a desired combination of the terms to adder/subtractors 22, 23 (or 26)" (page 12, lines 24-26). That is, the postprocessing section 7 operates on intermediate terms to generate output data xi that is either a sum of intermediate terms (Mi and Ni) or a difference of intermediate terms, based upon the value of the integer i (page 12, lines 17-22). However, postprocessing section 7 does not operate on selected data elements from the input sequence to generate sum and difference data, where the selected data elements represent encoded audio samples. In other words, although postprocessing section 7 does operate as preprocessing section 1 to generate sum or difference data, postprocessing unit 7 does not generate an array of

sum data and an array of difference data using selected data elements from the input sequence, as claimed.

Specifically, Uramoto discloses that x2 = M2 + N2 = A·y0 - C·y2 - A·y4 + B·y6 + F·y1 - D·y3 + G·y[5] + E·y7 (page 11, expression 13 and page 12, lines 7-20). That is, the sum output data generated by Uramoto (i.e.., x0, x1, x2, x3) is not comprised of "selected data elements from the input sequence," as claimed. Instead, Uramoto generates an output x2, for example, that comprises additions and subtractions of products of input data (y0, y1, y2, y3, y4, y5, y6, y7) and elements (A, B, C, D, E, F, G) of a coefficient matrix (expression 13, page 11).

The Examiner's position appears to be that Uramoto **could** be further modified to achieve the claimed invention. The mere fact that references could be further modified is insufficient to establish obviousness, and the Examiner cites no motivation for this proposed further modification other than alleged skill in the art. Moreover, if the combination were further modified as the Examiner appears to suggest, the combination would not operate in accordance with the principles of operation of the decoder of Uramoto, which teaches an IDCT for decoding. Thus, Uramoto cannot be considered to render the subject matter of claims 1-6, 11, 18 and 19 obvious.

Accordingly, Uramoto does not teach, suggest, or motivate, nor has the Examiner shown, decoding using "selected data elements from the input sequence" to generate either an array of sum data or an array of difference data, as claimed. Based at least upon the above arguments, Applicants respectfully submit that claims 1-6, 11, 18 and 19 are not obvious over Uramoto.

The Examiner rejected claims 7-10, 12-17 and 20 under 35 U.S.C. § 103(a) as obvious over Uramoto in view of ISO Standard 11172-3. Applicants respectfully traverse the Examiner's rejections. As an initial matter, ISO Standard 11172-3 does not remedy the deficiencies of Uramoto as discussed above in the conjunction with claims 1 and 11. ISO Standard 11172-3 does not teach, suggest or motivate "[a] method of **decoding** digital audio data, comprising the steps of ... preprocessing the input sequence of data elements to produce an array of sum data and an array of difference data **using selected data elements from the input sequence**," as recited in claim 1, or "[a] synthesis sub-band filter for use in **decoding** digital

audio data, comprising … pre-processing means for producing an array of sum data and an array of difference data **using selected data elements from the input sequence** …" as recited in claim 11. Claim 8 similarly recites: "[a] method of decoding…input digital audio data samples … comprising the steps of: … producing an array of sum data … [;] producing an array of difference data … [;] producing a first output audio data sample by a multiply-accumulate operation." Claim 14 similarly recites, in part, "[an] MPEG decoder comprising … means for producing an array of sum data and an array of difference data using selected data elements from the input sequence." Claim 7 depends from claim 1, claims 9, 10 and 20 depend from claim 8, claims 12 and 13 depend from claim 11, and claims 15, 16 and 17 depend from claim 14.

The Examiner again points to the description of Figure 5 of Uramoto, which describes an **encoder**. As discussed above, Uramoto teaches away from the claimed invention by describing the use of a difference method of decoding. See, *e.g.*, the description of Figure 11 of Uramoto. Further, one would not be motivated to combine the inverse modified discrete cosine transform (IMDCT) with Uramoto, which as discussed above teaches the DCT for encoding and IDCT for decoding.

Further, with respect to claim 8, the sum output data xi = MI + Ni for I = 0, 1, 2, 3 and the difference output data xi = Mi – Ni for i = 4, 5, 6, 7 generated by postprocessing section 7 (Uramoto, page 12, lines 20-22 and Fig. 11) is not the same as the array of sum data SADD[k] = S[k] + S[m-1-k] and the array of difference data SSUB[k] = S[k] – S(m-1-k) (for k = 0, 1 …(m/2-1)), as claimed. Uramoto discloses Mi to be an intermediate term comprised of additions and/or subtractions of products of input data (y0, y2, y4, y6) with coefficients A, B, C, and Ni to be an intermediate term comprised of additions and/or subtractions of products of input data (y1, y3, y5, y7) with coefficients D, E, F and G (page 11, expression 13 to page 12, line 22). In contrast, S[k] and S[m –1 – k] are coded input digital audio data samples. In other words, it is clear that xi = Mi. Ni does not equal either SADD[k] or SSUB[k], since S[k] does not equal Mi and S[m-1-k] does not equal Ni.

Accordingly, Applicants respectfully submit that claims 1-20 are not rendered obvious by Uramoto, alone or in combination with ISO Standard 11172-3.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

SEED Intellectual Property Law Group PLLC

Timothy L. Boller
Registration No. 47,435

TLB:jms

701 Fifth Avenue, Suite 5400
Seattle, Washington 98104
Phone: (206) 622-4900
Fax: (206) 682-6031

951374_2.DOC